



## SEQUENCE LISTING

<110> Lambeth, J. David  
Cheng, Guangjie  
McCoy, James

<120> Methods and Transgenic Mouse Model for Identifying and Modulating  
Factors Involved in the Production of Reactive Oxygen Intermediates

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<140> 10/618,839

<141> 2003-07-14

<150> US 60/395,498

<151> 2002-07-12

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<170> PatentIn version 3.2

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Leu	Ile	Pro	Val	Ser	Arg	Asn	Leu	Ile	Ser	Phe	Ile	Arg	Gly	Thr	Ser	
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gag	gag	gcc	cag	gga	ctt	ctg	gcc	gca	ctt	tcc	aag	ctg	ggc	aac	acc	547
Glu	Glu	Ala	Gln	Gly	Leu	Leu	Ala	Ala	Leu	Ser	Lys	Leu	Gly	Asn	Thr	
		135					140					145				
cct	aac	gag	agc	tac	ctc	aac	cct	gtc	cgg	acc	ttc	ccc	aca	aac	aca	595
Pro	Asn	Glu	Ser	Tyr	Leu	Asn	Pro	Val	Arg	Thr	Phe	Pro	Thr	Asn	Thr	
	150					155				160						
acc	act	gaa	ttg	cta	agg	aca	ata	gca	ggc	gtc	acc	ggt	ctg	gtg	atc	643
Thr	Thr	Glu	Leu	Leu	Arg	Thr	Ile	Ala	Gly	Val	Thr	Gly	Leu	Val	Ile	
165					170				175					180		
tct	ctg	gct	tta	gtc	ttg	atc	atg	acc	tcg	tca	act	gag	ttc	atc	aga	691
Ser	Leu	Ala	Leu	Val	Leu	Ile	Met	Thr	Ser	Ser	Thr	Glu	Phe	Ile	Arg	
			185					190						195		
cag	gcc	tcc	tat	gag	ttg	ttc	tgg	tac	aca	cac	cat	gtt	ttc	atc	gtc	739
Gln	Ala	Ser	Tyr	Glu	Leu	Phe	Trp	Tyr	Thr	His	His	Val	Phe	Ile	Val	
			200					205					210			
ttc	ttt	ctc	agc	ctg	gcc	atc	cat	ggg	acg	ggt	cgg	att	gtt	cga	ggc	787
Phe	Phe	Leu	Ser	Leu	Ala	Ile	His	Gly	Thr	Gly	Arg	Ile	Val	Arg	Gly	
		215					220				225					

caa acc caa gac agt ctc tct ctg cac aac atc acc ttc tgt aga gac	835
Gln Thr Gln Asp Ser Leu Ser Leu His Asn Ile Thr Phe Cys Arg Asp	
230 235 240	
cgc tat gca gaa tgg cag aca gtg gcc caa tgc ccc gtg cct caa ttt	883
Arg Tyr Ala Glu Trp Gln Thr Val Ala Gln Cys Pro Val Pro Gln Phe	
245 250 255 260	
tct ggc aag gaa ccc tcg gct tgg aaa tgg att tta ggc cct gtg gtc	931
Ser Gly Lys Glu Pro Ser Ala Trp Lys Trp Ile Leu Gly Pro Val Val	
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Leu Tyr Ala Cys Glu Arg Ile Ile Arg Phe Trp Arg Phe Gln Gln Glu	
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Val Val Ile Thr Lys Val Val Ser His Pro Ser Gly Val Leu Glu Leu	
295 300 305	
cac atg aaa aag cgt ggc ttt aaa atg gcg cca ggg cag tac atc ttg	1075
His Met Lys Lys Arg Gly Phe Lys Met Ala Pro Gly Gln Tyr Ile Leu	
310 315 320	
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Val Gln Cys Pro Ala Ile Ser Ser Leu Glu Trp His Pro Phe Thr Leu	
325 330 335 340	
acc tct gcc ccc cag gaa gac ttt ttc agc gtg cac atc cgg gca gca	1171
Thr Ser Ala Pro Gln Glu Asp Phe Phe Ser Val His Ile Arg Ala Ala	
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Gly Asp Trp Thr Ala Ala Leu Leu Glu Ala Phe Gly Ala Glu Gly Gln	
360 365 370	
gcc ctc cag gag ccc tgg agc ctg cca agg ctg gca gtg gac ggg ccc	1267
Ala Leu Gln Glu Pro Trp Ser Leu Pro Arg Leu Ala Val Asp Gly Pro	
375 380 385	
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Phe Gly Thr Ala Leu Thr Asp Val Phe His Tyr Pro Val Cys Val Cys	
390 395 400	
gtt gcc gcg ggg atc gga gtc act ccc ttc gct gct ctt ctg aaa tct	1363
Val Ala Ala Gly Ile Gly Val Thr Pro Phe Ala Ala Leu Leu Lys Ser	
405 410 415 420	
ata tgg tac aaa tgc agt gag gca cag acc cca ctg aag ctg agc aag	1411
Ile Trp Tyr Lys Cys Ser Glu Ala Gln Thr Pro Leu Lys Leu Ser Lys	
425 430 435	
gtg tat ttc tac tgg att tgc cgg gat gca aga gct ttt gag tgg ttt	1459
Val Tyr Phe Tyr Trp Ile Cys Arg Asp Ala Arg Ala Phe Glu Trp Phe	
440 445 450	

gct gat ctc tta ctc tcc ctg gaa aca cgg atg agt gag cag ggg aaa 1507  
Ala Asp Leu Leu Leu Ser Leu Glu Thr Arg Met Ser Glu Gln Gly Lys  
455 460 465

act cac ttt ctg agt tat cat ata ttt ctt acc ggc tgg gat gaa aat 1555  
Thr His Phe Leu Ser Tyr His Ile Phe Leu Thr Gly Trp Asp Glu Asn  
470 475 480

cag gct ctt cac ata gct tta cac tgg gac gaa aat act gac gtg att 1603  
Gln Ala Leu His Ile Ala Leu His Trp Asp Glu Asn Thr Asp Val Ile  
485 490 495 500

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aca ggc tta aag cag aag acc ttc tat ggg agg ccc aac tgg aac aat      1651
Thr Gly Leu Lys Gln Lys Thr Phe Tyr Gly Arg Pro Asn Trp Asn Asn
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Glu Phe Lys Gln Ile Ala Tyr Asn His Pro Ser Ser Ser Ile Gly Val  
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ttc ttc tgt gga cct aaa gct ctc tcg agg aca ctt caa aag atg tgc 1747  
Phe Phe Cys Gly Pro Lys Ala Leu Ser Arg Thr Leu Gln Lys Met Cys  
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cac ttg tat tca tca gct gac ccc aga ggt gtt cat ttc tat tac aac 1795  
 His Leu Tyr Ser Ser Ala Asp Pro Arg Gly Val His Phe Tyr Tyr Asn  
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aag gag agc ttc tag actttggagg tcaagtccag gcattgtgtt ttcaatcaag 1850  
Lys Glu Ser Phe  
565

ttattgattc caaagaactc caccaggaat tcctgtgacg gcctgttgat atgagctccc 1910

agttgggaac tggatgaataa taattaacta ttgtgaacag tacactatac cataacttcct 1970

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Trp Tyr Glu Glu Glu Glu Ser Phe His Tyr Thr Arg Val Ile Leu Gly  
 35 40 45

Ser Thr Leu Ala Trp Ala Arg Ala Ser Ala Leu Cys Leu Asn Phe Asn  
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Cys Met Leu Ile Leu Ile Pro Val Ser Arg Asn Leu Ile Ser Phe Ile  
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Arg Gly Thr Ser Ile Cys Cys Arg Gly Pro Trp Arg Arg Gln Leu Asp  
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Lys Asn Leu Arg Phe His Lys Leu Val Ala Tyr Gly Ile Ala Val Asn  
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Ala Thr Ile His Ile Val Ala His Phe Phe Asn Leu Glu Arg Tyr His  
 115 120 125

Trp Ser Gln Ser Glu Glu Ala Gln Gly Leu Leu Ala Ala Leu Ser Lys  
 130 135 140

Leu Gly Asn Thr Pro Asn Glu Ser Tyr Leu Asn Pro Val Arg Thr Phe  
 145 150 155 160

Pro Thr Asn Thr Thr Thr Glu Leu Leu Arg Thr Ile Ala Gly Val Thr  
 165 170 175

Gly Leu Val Ile Ser Leu Ala Leu Val Leu Ile Met Thr Ser Ser Thr  
 180 185 190

Glu Phe Ile Arg Gln Ala Ser Tyr Glu Leu Phe Trp Tyr Thr His His  
 195 200 205

Val Phe Ile Val Phe Phe Leu Ser Leu Ala Ile His Gly Thr Gly Arg  
 210 215 220

Ile Val Arg Gly Gln Thr Gln Asp Ser Leu Ser Leu His Asn Ile Thr  
 225 230 235 240

Phe Cys Arg Asp Arg Tyr Ala Glu Trp Gln Thr Val Ala Gln Cys Pro

				245						250						255
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Phe	Gln	Gln	Glu	Val	Val	Ile	Thr	Lys	Val	Val	Ser	His	Pro	Ser	Gly	
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Val	Leu	Glu	Leu	His	Met	Lys	Lys	Arg	Gly	Phe	Lys	Met	Ala	Pro	Gly	
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Gln	Tyr	Ile	Leu	Val	Gln	Cys	Pro	Ala	Ile	Ser	Ser	Leu	Glu	Trp	His	
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Pro	Phe	Thr	Leu	Thr	Ser	Ala	Pro	Gln	Glu	Asp	Phe	Phe	Ser	Val	His	
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Ile	Arg	Ala	Ala	Gly	Asp	Trp	Thr	Ala	Ala	Leu	Leu	Glu	Ala	Phe	Gly	
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Ala	Glu	Gly	Gln	Ala	Leu	Gln	Glu	Pro	Trp	Ser	Leu	Pro	Arg	Leu	Ala	
	370					375					380					
Val	Asp	Gly	Pro	Phe	Gly	Thr	Ala	Leu	Thr	Asp	Val	Phe	His	Tyr	Pro	
385					390					395					400	
Val	Cys	Val	Cys	Val	Ala	Ala	Gly	Ile	Gly	Val	Thr	Pro	Phe	Ala	Ala	
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Leu	Leu	Lys	Ser	Ile	Trp	Tyr	Lys	Cys	Ser	Glu	Ala	Gln	Thr	Pro	Leu	
			420					425					430			
Lys	Leu	Ser	Lys	Val	Tyr	Phe	Tyr	Trp	Ile	Cys	Arg	Asp	Ala	Arg	Ala	
		435					440					445				
Phe	Glu	Trp	Phe	Ala	Asp	Leu	Leu	Leu	Ser	Leu	Glu	Thr	Arg	Met	Ser	
	450					455					460					

Glu Gln Gly Lys Thr His Phe Leu Ser Tyr His Ile Phe Leu Thr Gly  
 465 470 475 480

Trp Asp Glu Asn Gln Ala Leu His Ile Ala Leu His Trp Asp Glu Asn  
 485 490 495

Thr Asp Val Ile Thr Gly Leu Lys Gln Lys Thr Phe Tyr Gly Arg Pro  
 500 505 510

Asn Trp Asn Asn Glu Phe Lys Gln Ile Ala Tyr Asn His Pro Ser Ser  
 515 520 525

Ser Ile Gly Val Phe Phe Cys Gly Pro Lys Ala Leu Ser Arg Thr Leu  
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Phe Tyr Tyr Asn Lys Glu Ser Phe  
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 Met Ala Val Ser Trp Arg Ser Trp Leu  
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 gcc aac gaa ggg gtt aaa cac ctc tgc ctg ttc atc tgg ctc tcc atg 161  
 Ala Asn Glu Gly Val Lys His Leu Cys Leu Phe Ile Trp Leu Ser Met  
 10 15 20 25  
 aat gtc ctg ctt ttc tgg aaa acc ttc ttg ctg tat aac caa ggg cca 209  
 Asn Val Leu Leu Phe Trp Lys Thr Phe Leu Leu Tyr Asn Gln Gly Pro  
 30 35 40  
 gag tat cac tac ctc cac cag atg ttg ggg cta gga ttg tgt cta agc 257  
 Glu Tyr His Tyr Leu His Gln Met Leu Gly Leu Gly Leu Cys Leu Ser

45					50					55						
aga	gcc	tca	gca	tct	gtt	ctt	aac	ctc	aac	tgc	agc	ctt	atc	ctt	tta	305
Arg	Ala	Ser	Ala	Ser	Val	Leu	Asn	Leu	Asn	Cys	Ser	Leu	Ile	Leu	Leu	
	60						65					70				
ccc	atg	tgc	cga	aca	ctc	ttg	gct	tac	ctc	cga	gga	tca	cag	aag	gtt	353
Pro	Met	Cys	Arg	Thr	Leu	Leu	Ala	Tyr	Leu	Arg	Gly	Ser	Gln	Lys	Val	
	75					80					85					
cca	agc	agg	aga	acc	agg	aga	ttg	ttg	gat	aaa	agc	aga	aca	ttc	cat	401
Pro	Ser	Arg	Arg	Thr	Arg	Arg	Leu	Leu	Asp	Lys	Ser	Arg	Thr	Phe	His	
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att	acc	tgt	ggt	gtt	act	atc	tgt	att	ttc	tca	ggc	gtg	cat	gtg	gct	449
Ile	Thr	Cys	Gly	Val	Thr	Ile	Cys	Ile	Phe	Ser	Gly	Val	His	Val	Ala	
				110					115					120		
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Ala	His	Leu	Val	Asn	Ala	Leu	Asn	Phe	Ser	Val	Asn	Tyr	Ser	Glu	Asp	
			125					130					135			
ttt	gtt	gaa	ctg	aat	gca	gca	aga	tac	cga	gat	gag	gat	cct	aga	aaa	545
Phe	Val	Glu	Leu	Asn	Ala	Ala	Arg	Tyr	Arg	Asp	Glu	Asp	Pro	Arg	Lys	
		140					145					150				
ctt	ctc	ttc	aca	act	gtt	cct	ggc	ctg	aca	ggg	gtc	tgc	atg	gtg	gtg	593
Leu	Leu	Phe	Thr	Thr	Val	Pro	Gly	Leu	Thr	Gly	Val	Cys	Met	Val	Val	
	155					160					165					
gtg	cta	ttc	ctc	atg	atc	aca	gcc	tct	aca	tat	gca	ata	aga	gtt	tct	641
Val	Leu	Phe	Leu	Met	Ile	Thr	Ala	Ser	Thr	Tyr	Ala	Ile	Arg	Val	Ser	
170					175					180					185	
aac	tat	gat	atc	ttc	tgg	tat	act	cat	aac	ctc	ttc	ttt	gtc	ttc	tac	689
Asn	Tyr	Asp	Ile	Phe	Trp	Tyr	Thr	His	Asn	Leu	Phe	Phe	Val	Phe	Tyr	
				190					195					200		
atg	ctg	ctg	acg	ttg	cat	gtt	tca	gga	ggg	ctg	ctg	aag	tat	caa	act	737
Met	Leu	Leu	Thr	Leu	His	Val	Ser	Gly	Gly	Leu	Leu	Lys	Tyr	Gln	Thr	
			205					210					215			
aat	tta	gat	acc	cac	cct	ccc	ggc	tgc	atc	agt	ctt	aac	cga	acc	agc	785
Asn	Leu	Asp	Thr	His	Pro	Pro	Gly	Cys	Ile	Ser	Leu	Asn	Arg	Thr	Ser	
		220					225					230				
tct	cag	aat	att	tcc	tta	cca	gag	tat	ttc	tca	gaa	cat	ttt	cat	gaa	833
Ser	Gln	Asn	Ile	Ser	Leu	Pro	Glu	Tyr	Phe	Ser	Glu	His	Phe	His	Glu	
	235					240					245					
cct	ttc	cct	gaa	gga	ttt	tca	aaa	ccg	gca	gag	ttt	acc	cag	cac	aaa	881
Pro	Phe	Pro	Glu	Gly	Phe	Ser	Lys	Pro	Ala	Glu	Phe	Thr	Gln	His	Lys	
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Phe Val Lys Ile Cys Met Glu Glu Pro Arg Phe Gln Ala Asn Phe Pro	
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cag act tgg ctt tgg att tct gga cct ttg tgc ctg tac tgt gcc gaa	977
Gln Thr Trp Leu Trp Ile Ser Gly Pro Leu Cys Leu Tyr Cys Ala Glu	
285 290 295	
aga ctt tac agg tat atc cgg agc aat aag cca gtc acc atc att tcg	1025
Arg Leu Tyr Arg Tyr Ile Arg Ser Asn Lys Pro Val Thr Ile Ile Ser	
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gtc ata agt cat ccc tca gat gtc atg gaa atc cga atg gtc aaa gaa	1073
Val Ile Ser His Pro Ser Asp Val Met Glu Ile Arg Met Val Lys Glu	
315 320 325	
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Asn Phe Lys Ala Arg Pro Gly Gln Tyr Ile Thr Leu His Cys Pro Ser	
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Val Ser Ala Leu Glu Asn His Pro Phe Thr Leu Thr Met Cys Pro Thr	
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gaa acc aaa gca aca ttt ggg gtt cat ctt aaa ata gta gga gac tgg	1217
Glu Thr Lys Ala Thr Phe Gly Val His Leu Lys Ile Val Gly Asp Trp	
365 370 375	
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Thr Glu Arg Phe Arg Asp Leu Leu Leu Pro Pro Ser Ser Gln Asp Ser	
380 385 390	
gaa att ctg ccc ttc att caa tct aga aat tat ccc aag ctg tat att	1313
Glu Ile Leu Pro Phe Ile Gln Ser Arg Asn Tyr Pro Lys Leu Tyr Ile	
395 400 405	
gat ggt cct ttt gga agt cca ttt gag gaa tca ctg aac tat gag gtc	1361
Asp Gly Pro Phe Gly Ser Pro Phe Glu Glu Ser Leu Asn Tyr Glu Val	
410 415 420 425	
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Ser Leu Cys Val Ala Gly Gly Ile Gly Val Thr Pro Phe Ala Ser Ile	
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ctc aac acc ctg ttg gat gac tgg aaa cca tac aag ctt aga aga cta	1457
Leu Asn Thr Leu Leu Asp Asp Trp Lys Pro Tyr Lys Leu Arg Arg Leu	
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tac ttt att tgg gta tgc aga gat atc cag tcc ttc cgt tgg ttt gca	1505
Tyr Phe Ile Trp Val Cys Arg Asp Ile Gln Ser Phe Arg Trp Phe Ala	
460 465 470	
gat tta ctc tgt atg ttg cat aac aag ttt tgg caa gag aac aga cct	1553
Asp Leu Leu Cys Met Leu His Asn Lys Phe Trp Gln Glu Asn Arg Pro	
475 480 485	

gac tat gtc aac atc cag ctg tac ctc agt caa aca gat ggg ata cag 1601  
 Asp Tyr Val Asn Ile Gln Leu Tyr Leu Ser Gln Thr Asp Gly Ile Gln  
 490 495 500 505

aag ata att gga gaa aaa tat cat gca ctg aat tca aga ctg ttt ata 1649  
 Lys Ile Ile Gly Glu Lys Tyr His Ala Leu Asn Ser Arg Leu Phe Ile  
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gga cgt cct cgg tgg aaa ctt ttg ttt gat gaa ata gca aaa tat aac 1697  
 Gly Arg Pro Arg Trp Lys Leu Leu Phe Asp Glu Ile Ala Lys Tyr Asn  
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 Arg Gly Lys Thr Val Gly Val Phe Cys Cys Gly Pro Asn Ser Leu Ser  
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 Lys Thr Leu His Lys Leu Ser Asn Gln Asn Asn Ser Tyr Gly Thr Arg  
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Thr Phe Leu Leu Tyr Asn Gln Gly Pro Glu Tyr His Tyr Leu His Gln

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Asn	Leu	Asn	Cys	Ser	Leu	Ile	Leu	Leu	Pro	Met	Cys	Arg	Thr	Leu	Leu	
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Ala	Tyr	Leu	Arg	Gly	Ser	Gln	Lys	Val	Pro	Ser	Arg	Arg	Thr	Arg	Arg	
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Leu	Leu	Asp	Lys	Ser	Arg	Thr	Phe	His	Ile	Thr	Cys	Gly	Val	Thr	Ile	
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Cys	Ile	Phe	Ser	Gly	Val	His	Val	Ala	Ala	His	Leu	Val	Asn	Ala	Leu	
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Asn	Phe	Ser	Val	Asn	Tyr	Ser	Glu	Asp	Phe	Val	Glu	Leu	Asn	Ala	Ala	
	130					135					140					
Arg	Tyr	Arg	Asp	Glu	Asp	Pro	Arg	Lys	Leu	Leu	Phe	Thr	Thr	Val	Pro	
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Gly	Leu	Thr	Gly	Val	Cys	Met	Val	Val	Val	Leu	Phe	Leu	Met	Ile	Thr	
				165					170					175		
Ala	Ser	Thr	Tyr	Ala	Ile	Arg	Val	Ser	Asn	Tyr	Asp	Ile	Phe	Trp	Tyr	
			180					185					190			
Thr	His	Asn	Leu	Phe	Phe	Val	Phe	Tyr	Met	Leu	Leu	Thr	Leu	His	Val	
		195					200					205				
Ser	Gly	Gly	Leu	Leu	Lys	Tyr	Gln	Thr	Asn	Leu	Asp	Thr	His	Pro	Pro	
	210					215					220					
Gly	Cys	Ile	Ser	Leu	Asn	Arg	Thr	Ser	Ser	Gln	Asn	Ile	Ser	Leu	Pro	
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Glu	Tyr	Phe	Ser	Glu	His	Phe	His	Glu	Pro	Phe	Pro	Glu	Gly	Phe	Ser	
				245					250					255		

Lys Pro Ala Glu Phe Thr Gln His Lys Phe Val Lys Ile Cys Met Glu  
 260 265 270

Glu Pro Arg Phe Gln Ala Asn Phe Pro Gln Thr Trp Leu Trp Ile Ser  
 275 280 285

Gly Pro Leu Cys Leu Tyr Cys Ala Glu Arg Leu Tyr Arg Tyr Ile Arg  
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Ser Asn Lys Pro Val Thr Ile Ile Ser Val Ile Ser His Pro Ser Asp  
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Val Met Glu Ile Arg Met Val Lys Glu Asn Phe Lys Ala Arg Pro Gly  
 325 330 335

Gln Tyr Ile Thr Leu His Cys Pro Ser Val Ser Ala Leu Glu Asn His  
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Pro Phe Thr Leu Thr Met Cys Pro Thr Glu Thr Lys Ala Thr Phe Gly  
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Val His Leu Lys Ile Val Gly Asp Trp Thr Glu Arg Phe Arg Asp Leu  
 370 375 380

Leu Leu Pro Pro Ser Ser Gln Asp Ser Glu Ile Leu Pro Phe Ile Gln  
 385 390 395 400

Ser Arg Asn Tyr Pro Lys Leu Tyr Ile Asp Gly Pro Phe Gly Ser Pro  
 405 410 415

Phe Glu Glu Ser Leu Asn Tyr Glu Val Ser Leu Cys Val Ala Gly Gly  
 420 425 430

Ile Gly Val Thr Pro Phe Ala Ser Ile Leu Asn Thr Leu Leu Asp Asp  
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Trp Lys Pro Tyr Lys Leu Arg Arg Leu Tyr Phe Ile Trp Val Cys Arg  
 450 455 460

Asp Ile Gln Ser Phe Arg Trp Phe Ala Asp Leu Leu Cys Met Leu His  
 465 470 475 480

Asn Lys Phe Trp Gln Glu Asn Arg Pro Asp Tyr Val Asn Ile Gln Leu  
                   485                  490                  495

Tyr Leu Ser Gln Thr Asp Gly Ile Gln Lys Ile Ile Gly Glu Lys Tyr  
                   500                  505                  510

His Ala Leu Asn Ser Arg Leu Phe Ile Gly Arg Pro Arg Trp Lys Leu  
                   515                  520                  525

Leu Phe Asp Glu Ile Ala Lys Tyr Asn Arg Gly Lys Thr Val Gly Val  
                   530                  535                  540

Phe Cys Cys Gly Pro Asn Ser Leu Ser Lys Thr Leu His Lys Leu Ser  
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Phe Ser

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                   Met Glu Asn Leu Thr Ile Ser Thr Ala His Trp Leu Thr  
                   1                  5                  10  
 gcc ccc gcc ccc cgc cca cgc ccg cgc cgg ccg cgc cag ctg acc cgc 159  
 Ala Pro Ala Pro Arg Pro Arg Pro Arg Arg Pro Arg Gln Leu Thr Arg  
                   15                  20                  25  
 gcc tac tgg cac aac cac cgc agc cag ctg ttc tgc ctg gcc acc tat 207  
 Ala Tyr Trp His Asn His Arg Ser Gln Leu Phe Cys Leu Ala Thr Tyr  
                   30                  35                  40                  45  
 gca ggc ctc cac gtg ctg ctc ttc ggg ctg gcg gcc agc gcg cac cgg 255

Ala	Gly	Leu	His	Val	Leu	Leu	Phe	Gly	Leu	Ala	Ala	Ser	Ala	His	Arg	
				50					55					60		
gac	ctc	ggc	gcc	agc	gtc	atg	gtg	gcc	aag	ggc	tgt	ggc	cag	tgc	ctc	303
Asp	Leu	Gly	Ala	Ser	Val	Met	Val	Ala	Lys	Gly	Cys	Gly	Gln	Cys	Leu	
			65					70					75			
aac	ttc	gac	tgc	agc	ttc	atc	gcg	gtg	ctg	atg	ctc	aga	cgc	tgc	ctc	351
Asn	Phe	Asp	Cys	Ser	Phe	Ile	Ala	Val	Leu	Met	Leu	Arg	Arg	Cys	Leu	
		80					85					90				
acc	tgg	ctg	cgg	gcc	acg	tgg	ctg	gct	caa	gtc	cta	cca	ctg	gac	cag	399
Thr	Trp	Leu	Arg	Ala	Thr	Trp	Leu	Ala	Gln	Val	Leu	Pro	Leu	Asp	Gln	
	95					100					105					
aac	atc	cag	ttc	cac	cag	ctt	atg	ggc	tac	gtg	gta	gtg	ggg	ctg	tcc	447
Asn	Ile	Gln	Phe	His	Gln	Leu	Met	Gly	Tyr	Val	Val	Val	Gly	Leu	Ser	
110					115					120					125	
ctc	gtg	cac	act	gtg	gct	cac	act	gtg	aac	ttt	gta	ctc	cag	gct	cag	495
Leu	Val	His	Thr	Val	Ala	His	Thr	Val	Asn	Phe	Val	Leu	Gln	Ala	Gln	
				130					135				140			
gcg	gag	gcc	agc	cct	ttc	cag	ttc	tgg	gag	ctg	ctg	ctc	acc	acg	agg	543
Ala	Glu	Ala	Ser	Pro	Phe	Gln	Phe	Trp	Glu	Leu	Leu	Leu	Thr	Thr	Arg	
			145					150					155			
cct	ggc	att	ggc	tgg	gta	cac	ggg	tgc	gcc	tcc	ccg	aca	ggg	gtc	gct	591
Pro	Gly	Ile	Gly	Trp	Val	His	Gly	Ser	Ala	Ser	Pro	Thr	Gly	Val	Ala	
		160					165					170				
ctg	ctg	ctg	ctg	ctc	ctc	ctc	atg	ttc	atc	tgc	tcc	agt	tcc	tgc	atc	639
Leu	Leu	Leu	Leu	Leu	Leu	Leu	Met	Phe	Ile	Cys	Ser	Ser	Ser	Cys	Ile	
	175						180				185					
cgc	agg	agt	ggc	cac	ttt	gag	gtg	ttc	tat	tgg	act	cac	ctg	tcc	tac	687
Arg	Arg	Ser	Gly	His	Phe	Glu	Val	Phe	Tyr	Trp	Thr	His	Leu	Ser	Tyr	
190					195					200					205	
ctc	ctc	gtg	tgg	ctt	ctg	ctc	atc	ttt	cat	ggg	ccc	aac	ttc	tgg	aag	735
Leu	Leu	Val	Trp	Leu	Leu	Leu	Ile	Phe	His	Gly	Pro	Asn	Phe	Trp	Lys	
				210					215					220		
tgg	ctg	ctg	gtg	cct	gga	atc	ttg	ttt	ttc	ctg	gag	aag	gcc	atc	gga	783
Trp	Leu	Leu	Val	Pro	Gly	Ile	Leu	Phe	Phe	Leu	Glu	Lys	Ala	Ile	Gly	
			225					230					235			
ctg	gca	gtg	tcc	cgc	atg	gca	gcc	gtg	tgc	atc	atg	gaa	gtc	aac	ctc	831
Leu	Ala	Val	Ser	Arg	Met	Ala	Ala	Val	Cys	Ile	Met	Glu	Val	Asn	Leu	
		240					245					250				
ctc	ccc	tcc	aag	gtc	act	cat	ctc	ctc	atc	aag	cgg	ccc	cct	ttt	ttt	879
Leu	Pro	Ser	Lys	Val	Thr	His	Leu	Leu	Ile	Lys	Arg	Pro	Pro	Phe	Phe	
	255						260				265					

cac tat aga cct ggt gac tac ttg tat ctg aac atc ccc acc att gct	927
His Tyr Arg Pro Gly Asp Tyr Leu Tyr Leu Asn Ile Pro Thr Ile Ala	
270 275 280 285	
cgc tat gag tgg cac ccc ttc acc atc agc agt gct cct gag cag aaa	975
Arg Tyr Glu Trp His Pro Phe Thr Ile Ser Ser Ala Pro Glu Gln Lys	
290 295 300	
gac act atc tgg ctg cac att cgg tcc caa ggc cag tgg aca aac agg	1023
Asp Thr Ile Trp Leu His Ile Arg Ser Gln Gly Gln Trp Thr Asn Arg	
305 310 315	
ctg tat gag tcc ttc aag gca tca gac cca ctg ggc cgt ggt tct aag	1071
Leu Tyr Glu Ser Phe Lys Ala Ser Asp Pro Leu Gly Arg Gly Ser Lys	
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agg ctg tcg agg agt gtg aca atg aga aag agt caa agg tcg tcc aag	1119
Arg Leu Ser Arg Ser Val Thr Met Arg Lys Ser Gln Arg Ser Ser Lys	
335 340 345	
ggc tct gag ata ctt ttg gag aaa cac aaa ttc tgt aac atc aag tgc	1167
Gly Ser Glu Ile Leu Leu Glu Lys His Lys Phe Cys Asn Ile Lys Cys	
350 355 360 365	
tac atc gat ggg cct tat ggg acc ccc acc cgc agg atc ttt gcc tct	1215
Tyr Ile Asp Gly Pro Tyr Gly Thr Pro Thr Arg Arg Ile Phe Ala Ser	
370 375 380	
gag cat gcc gtg ctc atc ggg gca ggc atc ggc atc acc ccc ttt gct	1263
Glu His Ala Val Leu Ile Gly Ala Gly Ile Gly Ile Thr Pro Phe Ala	
385 390 395	
tcc att ctg cag agt atc atg tac agg cac cag aaa aga aag cat act	1311
Ser Ile Leu Gln Ser Ile Met Tyr Arg His Gln Lys Arg Lys His Thr	
400 405 410	
tgc ccc agc tgc cag cac tcc tgg atc gaa ggt gtc caa gac aac atg	1359
Cys Pro Ser Cys Gln His Ser Trp Ile Glu Gly Val Gln Asp Asn Met	
415 420 425	
aag ctc cat aag gtg gac ttt atc tgg atc aac aga gac cag cgg tct	1407
Lys Leu His Lys Val Asp Phe Ile Trp Ile Asn Arg Asp Gln Arg Ser	
430 435 440 445	
ttc gag tgg ttt gtg agc ctg ctg act aaa ctg gag atg gac cag gcc	1455
Phe Glu Trp Phe Val Ser Leu Leu Thr Lys Leu Glu Met Asp Gln Ala	
450 455 460	
gag gag gct caa tac ggc cgc ttc ctg gag ctg cat atg tac atg aca	1503
Glu Glu Ala Gln Tyr Gly Arg Phe Leu Glu Leu His Met Tyr Met Thr	
465 470 475	
tct gca ctg ggc aag aat gac atg aag gcc att ggc ctg cag atg gcc	1551
Ser Ala Leu Gly Lys Asn Asp Met Lys Ala Ile Gly Leu Gln Met Ala	
480 485 490	

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ctt gac ctc ctg gcc aac aag gag aag aaa gac tcc atc acg ggg ctg      1599
Leu Asp Leu Leu Ala Asn Lys Glu Lys Lys Asp Ser Ile Thr Gly Leu
   495                500                505

cag acg cgc acc cag cct ggg cgg cct gac tgg agc aag gtg ttc cag      1647
Gln Thr Arg Thr Gln Pro Gly Arg Pro Asp Trp Ser Lys Val Phe Gln
  510                515                520                525

aaa gtg gct gct gag aag aag ggc aag gtg cag gtc ttc ttc tgt ggc      1695
Lys Val Ala Ala Glu Lys Lys Gly Lys Val Gln Val Phe Phe Cys Gly
                530                535                540

tcc cca gct ctg gcc aag gtg ctg aag ggc cat tgt gag aag ttc ggc      1743
Ser Pro Ala Leu Ala Lys Val Leu Lys Gly His Cys Glu Lys Phe Gly
                545                550                555

ttc aga ttt ttc caa gag aat ttc tag cctcacctct ccaagctctg      1790
Phe Arg Phe Phe Gln Glu Asn Phe
   560                565

ccccaagtcc acaccatggg tctgcttcat cgcattagta taaatgcccc cacagggacc      1850

agcctcagat gaccaccca ataagacaaa gcctagggac ccctaatacc tgctcaacag      1910

agagaacagg agaccccaag gggcagatga acttcctcta gaaccagggg gaagggggcag      1970

tgccttgttc agtctgctgt agattctggg gtttctgtga aagtgagggg accagaggct      2030

ggtcacggga gcttgggggt ggggttcgag ggggcagagg gcaaccactc ctccaaacat      2090

tttccgacgg agccttcccc cacatccatg gtcccaaacc tgcccaatca tcacagtcac      2150

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aaaaaaaaaa aaa                                                    2223

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Pro Arg Pro Arg Pro Arg Arg Pro Arg Gln Leu Thr Arg Ala Tyr Trp
                20                25                30

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His Asn His Arg Ser Gln Leu Phe Cys Leu Ala Thr Tyr Ala Gly Leu
35                40                45

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His Val Leu Leu Phe Gly Leu Ala Ala Ser Ala His Arg Asp Leu Gly  
 50 55 60

Ala Ser Val Met Val Ala Lys Gly Cys Gly Gln Cys Leu Asn Phe Asp  
 65 70 75 80

Cys Ser Phe Ile Ala Val Leu Met Leu Arg Arg Cys Leu Thr Trp Leu  
 85 90 95

Arg Ala Thr Trp Leu Ala Gln Val Leu Pro Leu Asp Gln Asn Ile Gln  
 100 105 110

Phe His Gln Leu Met Gly Tyr Val Val Val Gly Leu Ser Leu Val His  
 115 120 125

Thr Val Ala His Thr Val Asn Phe Val Leu Gln Ala Gln Ala Glu Ala  
 130 135 140

Ser Pro Phe Gln Phe Trp Glu Leu Leu Leu Thr Thr Arg Pro Gly Ile  
 145 150 155 160

Gly Trp Val His Gly Ser Ala Ser Pro Thr Gly Val Ala Leu Leu Leu  
 165 170 175

Leu Leu Leu Leu Met Phe Ile Cys Ser Ser Ser Cys Ile Arg Arg Ser  
 180 185 190

Gly His Phe Glu Val Phe Tyr Trp Thr His Leu Ser Tyr Leu Leu Val  
 195 200 205

Trp Leu Leu Leu Ile Phe His Gly Pro Asn Phe Trp Lys Trp Leu Leu  
 210 215 220

Val Pro Gly Ile Leu Phe Phe Leu Glu Lys Ala Ile Gly Leu Ala Val  
 225 230 235 240

Ser Arg Met Ala Ala Val Cys Ile Met Glu Val Asn Leu Leu Pro Ser  
 245 250 255

Lys Val Thr His Leu Leu Ile Lys Arg Pro Pro Phe Phe His Tyr Arg

260	265	270
Pro Gly Asp Tyr Leu Tyr Leu Asn Ile Pro Thr Ile Ala Arg Tyr Glu		
275	280	285
Trp His Pro Phe Thr Ile Ser Ser Ala Pro Glu Gln Lys Asp Thr Ile		
290	295	300
Trp Leu His Ile Arg Ser Gln Gly Gln Trp Thr Asn Arg Leu Tyr Glu		
305	310	315
Ser Phe Lys Ala Ser Asp Pro Leu Gly Arg Gly Ser Lys Arg Leu Ser		
325	330	335
Arg Ser Val Thr Met Arg Lys Ser Gln Arg Ser Ser Lys Gly Ser Glu		
340	345	350
Ile Leu Leu Glu Lys His Lys Phe Cys Asn Ile Lys Cys Tyr Ile Asp		
355	360	365
Gly Pro Tyr Gly Thr Pro Thr Arg Arg Ile Phe Ala Ser Glu His Ala		
370	375	380
Val Leu Ile Gly Ala Gly Ile Gly Ile Thr Pro Phe Ala Ser Ile Leu		
385	390	395
Gln Ser Ile Met Tyr Arg His Gln Lys Arg Lys His Thr Cys Pro Ser		
405	410	415
Cys Gln His Ser Trp Ile Glu Gly Val Gln Asp Asn Met Lys Leu His		
420	425	430
Lys Val Asp Phe Ile Trp Ile Asn Arg Asp Gln Arg Ser Phe Glu Trp		
435	440	445
Phe Val Ser Leu Leu Thr Lys Leu Glu Met Asp Gln Ala Glu Glu Ala		
450	455	460
Gln Tyr Gly Arg Phe Leu Glu Leu His Met Tyr Met Thr Ser Ala Leu		
465	470	475
		480

Leu Ala Asn Lys Glu Lys Lys Asp Ser Ile Thr Gly Leu Gln Thr Arg  
500 505 510

Thr Gln Pro Gly Arg Pro Asp Trp Ser Lys Val Phe Gln Lys Val Ala  
515 520 525

Ala Glu Lys Lys Gly Lys Val Gln Val Phe Phe Cys Gly Ser Pro Ala  
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Phe Gln Glu Asn Phe  
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5 10 15

gga gct cag aac ccc att tcg tgg gag gtg cag cga ttt gat ggg tgg 451  
Gly Ala Gln Asn Pro Ile Ser Trp Glu Val Gln Arg Phe Asp Gly Trp

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tac aac aac ctc atg gag cac aga tgg ggc agc aaa ggc tcc cgg ctg				499
Tyr Asn Asn Leu Met Glu His Arg Trp Gly Ser Lys Gly Ser Arg Leu	40	45	50	
cag cgc ctg gtc cca gcc agc tat gca gat ggc gtg tac cag ccc ttg				547
Gln Arg Leu Val Pro Ala Ser Tyr Ala Asp Gly Val Tyr Gln Pro Leu	55	60	65	
gga gaa ccc cac ctg ccc aac ccc cga gac ctt agc aac acc atc tca				595
Gly Glu Pro His Leu Pro Asn Pro Arg Asp Leu Ser Asn Thr Ile Ser	70	75	80	
agg ggc cct gca ggg ctg gcc tcc ctg aga aac cgc aca gtg ttg ggg				643
Arg Gly Pro Ala Gly Leu Ala Ser Leu Arg Asn Arg Thr Val Leu Gly	85	90	95	
gtc ttc ttt ggc tat cac gtg ctt tca gac ctg gtg agc gtg gaa act				691
Val Phe Phe Gly Tyr His Val Leu Ser Asp Leu Val Ser Val Glu Thr	100	105	110	115
ccc ggc tgc ccc gcc gag ttc ctc aac att cgc atc ccg ccc gga gac				739
Pro Gly Cys Pro Ala Glu Phe Leu Asn Ile Arg Ile Pro Pro Gly Asp	120	125	130	
ccc atg ttc gac ccc gac cag cgc ggg gac gtg gtg ctg ccc ttc cag				787
Pro Met Phe Asp Pro Asp Gln Arg Gly Asp Val Val Leu Pro Phe Gln	135	140	145	
aga agc cgc tgg gac ccc gag acc gga cgg agt ccc agc aat ccc cgg				835
Arg Ser Arg Trp Asp Pro Glu Thr Gly Arg Ser Pro Ser Asn Pro Arg	150	155	160	
gac ccg gcc aac cag gtg acg ggc tgg ctg gac ggc agc gcc atc tat				883
Asp Pro Ala Asn Gln Val Thr Gly Trp Leu Asp Gly Ser Ala Ile Tyr	165	170	175	
ggt tcc tcg cat tcc tgg agc gac gcg ctg cgg agc ttc tcc agg gga				931
Gly Ser Ser His Ser Trp Ser Asp Ala Leu Arg Ser Phe Ser Arg Gly	180	185	190	195
cag ctg gcg tcg ggg ccc gac ccc gct ttt ccc cga gac tcg cag aac				979
Gln Leu Ala Ser Gly Pro Asp Pro Ala Phe Pro Arg Asp Ser Gln Asn	200	205	210	
ccc ctg ctc atg tgg gcg gcg ccc gac ccc gcc acc ggg cag aac ggg				1027
Pro Leu Leu Met Trp Ala Ala Pro Asp Pro Ala Thr Gly Gln Asn Gly	215	220	225	
ccc cgg ggg ctg tac gcc ttc ggg gca gag aga ggg aac cgg gaa ccc				1075
Pro Arg Gly Leu Tyr Ala Phe Gly Ala Glu Arg Gly Asn Arg Glu Pro	230	235	240	
ttc ctg cag gcg ctg ggc ctg ctc tgg ttc cgc tac cac aac ctg tgg				1123

Phe	Leu	Gln	Ala	Leu	Gly	Leu	Leu	Trp	Phe	Arg	Tyr	His	Asn	Leu	Trp	
245						250					255					
gcg	cag	agg	ctg	gcc	cgc	cag	cac	cca	gac	tgg	gag	gac	gag	gag	ctg	1171
Ala	Gln	Arg	Leu	Ala	Arg	Gln	His	Pro	Asp	Trp	Glu	Asp	Glu	Glu	Leu	
260					265				270						275	
ttc	cag	cac	gca	cgc	aag	agg	gtc	atc	gcc	acc	tac	cag	aac	atc	gct	1219
Phe	Gln	His	Ala	Arg	Lys	Arg	Val	Ile	Ala	Thr	Tyr	Gln	Asn	Ile	Ala	
			280						285					290		
gtg	tat	gag	tgg	ctg	ccc	agc	ttc	ctg	cag	aaa	aca	ctc	ccg	gag	tat	1267
Val	Tyr	Glu	Trp	Leu	Pro	Ser	Phe	Leu	Gln	Lys	Thr	Leu	Pro	Glu	Tyr	
			295					300					305			
aca	gga	tac	cgg	cca	ttt	ctg	gac	ccc	agc	atc	tcc	tca	gag	ttc	gtg	1315
Thr	Gly	Tyr	Arg	Pro	Phe	Leu	Asp	Pro	Ser	Ile	Ser	Ser	Glu	Phe	Val	
		310					315					320				
gcg	gcc	tct	gag	cag	ttc	ctg	tcc	acc	atg	gtg	ccc	cct	ggc	gtc	tac	1363
Ala	Ala	Ser	Glu	Gln	Phe	Leu	Ser	Thr	Met	Val	Pro	Pro	Gly	Val	Tyr	
		325				330					335					
atg	aga	aat	gcc	agc	tgc	cac	ttc	cag	ggg	gtc	atc	aat	cgg	aac	tca	1411
Met	Arg	Asn	Ala	Ser	Cys	His	Phe	Gln	Gly	Val	Ile	Asn	Arg	Asn	Ser	
340					345					350					355	
agt	gtc	tcc	aga	gct	ctc	cgg	gtc	tgc	aac	agc	tac	tgg	agc	cgt	gag	1459
Ser	Val	Ser	Arg	Ala	Leu	Arg	Val	Cys	Asn	Ser	Tyr	Trp	Ser	Arg	Glu	
				360					365					370		
cac	cca	agc	cta	caa	agt	gct	gaa	gat	gtg	gat	gca	ctg	ctg	ctg	ggc	1507
His	Pro	Ser	Leu	Gln	Ser	Ala	Glu	Asp	Val	Asp	Ala	Leu	Leu	Leu	Gly	
			375					380					385			
atg	gcc	tcc	cag	atc	gca	gag	cga	gag	gac	cat	gtg	ttg	gtt	gaa	gat	1555
Met	Ala	Ser	Gln	Ile	Ala	Glu	Arg	Glu	Asp	His	Val	Leu	Val	Glu	Asp	
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gtg	cgg	gat	ttc	tgg	cct	ggg	cca	ctg	aag	ttt	tcc	cgc	aca	gac	cac	1603
Val	Arg	Asp	Phe	Trp	Pro	Gly	Pro	Leu	Lys	Phe	Ser	Arg	Thr	Asp	His	
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ctg	gcc	agc	tgc	ctg	cag	cgg	ggc	cgg	gat	ctg	ggc	ctg	ccc	tct	tac	1651
Leu	Ala	Ser	Cys	Leu	Gln	Arg	Gly	Arg	Asp	Leu	Gly	Leu	Pro	Ser	Tyr	
420					425					430					435	
acc	aag	gcc	agg	gca	gca	ctg	ggc	ttg	tct	ccc	att	acc	cgc	tgg	cag	1699
Thr	Lys	Ala	Arg	Ala	Ala	Leu	Gly	Leu	Ser	Pro	Ile	Thr	Arg	Trp	Gln	
				440					445					450		
gac	atc	aac	cct	gca	ctc	tcc	cgg	agc	aat	gac	act	gta	ctg	gag	gcc	1747
Asp	Ile	Asn	Pro	Ala	Leu	Ser	Arg	Ser	Asn	Asp	Thr	Val	Leu	Glu	Ala	
			455					460					465			

aca gct gcc ctg tac aac cag gac tta tcc tgg cta gag ctg ctc cct	1795
Thr Ala Ala Leu Tyr Asn Gln Asp Leu Ser Trp Leu Glu Leu Leu Pro	
470 475 480	
ggg gga ctc ctg gag agc cac cgg gac cct gga cct ctg ttc agc acc	1843
Gly Gly Leu Leu Glu Ser His Arg Asp Pro Gly Pro Leu Phe Ser Thr	
485 490 495	
atc gtc ctt gaa caa ttt gtg cgg cta cgg gat ggt gac cgc tac tgg	1891
Ile Val Leu Glu Gln Phe Val Arg Leu Arg Asp Gly Asp Arg Tyr Trp	
500 505 510 515	
ttt gag aac acc agg aat ggg ctg ttc tcc aag aag gag att gaa gaa	1939
Phe Glu Asn Thr Arg Asn Gly Leu Phe Ser Lys Lys Glu Ile Glu Glu	
520 525 530	
atc cga aat acc acc ctg cag gac gtg ctg gtc gct gtt atc aac att	1987
Ile Arg Asn Thr Thr Leu Gln Asp Val Leu Val Ala Val Ile Asn Ile	
535 540 545	
gac ccc agt gct ctg cag ccc aat gtc ttt gtc tgg cat aaa gga gac	2035
Asp Pro Ser Ala Leu Gln Pro Asn Val Phe Val Trp His Lys Gly Asp	
550 555 560	
ccc tgt ccg cag ccg aga cag ctc agc act gaa ggc ctg cca gcg tgt	2083
Pro Cys Pro Gln Pro Arg Gln Leu Ser Thr Glu Gly Leu Pro Ala Cys	
565 570 575	
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Ala Pro Ser Val Val Arg Asp Tyr Phe Glu Gly Ser Gly Phe Gly Phe	
580 585 590 595	
ggg gtc acc atc ggg acc ctc tgt tgc ttc cct ttg gtg agc ctg ctc	2179
Gly Val Thr Ile Gly Thr Leu Cys Cys Phe Pro Leu Val Ser Leu Leu	
600 605 610	
agt gcc tgg att gtt gcc cgg ctc cgg atg aga aat ttc aag agg ctc	2227
Ser Ala Trp Ile Val Ala Arg Leu Arg Met Arg Asn Phe Lys Arg Leu	
615 620 625	
cag ggc cag gac cgc cag agc atc gtg tct gag aag ctc gtg gga ggc	2275
Gln Gly Gln Asp Arg Gln Ser Ile Val Ser Glu Lys Leu Val Gly Gly	
630 635 640	
atg gaa gct ttg gaa tgg caa ggc cac aag gag ccc tgc cgg ccc gtg	2323
Met Glu Ala Leu Glu Trp Gln Gly His Lys Glu Pro Cys Arg Pro Val	
645 650 655	
ctt gtg tac ctg cag ccc ggg cag atc cgt gtg gta gat ggc agg ctc	2371
Leu Val Tyr Leu Gln Pro Gly Gln Ile Arg Val Val Asp Gly Arg Leu	
660 665 670 675	
acc gtg ctc cgc acc atc cag ctg cag cct cca cag aag gtc aac ttc	2419
Thr Val Leu Arg Thr Ile Gln Leu Gln Pro Pro Gln Lys Val Asn Phe	
680 685 690	

gtc	ctg	tcc	agc	aac	cgt	gga	cgc	cgc	act	ctg	ctg	ctc	aag	atc	ccc	2467
Val	Leu	Ser	Ser	Asn	Arg	Gly	Arg	Arg	Thr	Leu	Leu	Leu	Lys	Ile	Pro	
			695					700					705			
aag	gag	tat	gac	ctg	gtg	ctg	ctg	ttt	aac	ttg	gag	gaa	gag	cgg	cag	2515
Lys	Glu	Tyr	Asp	Leu	Val	Leu	Leu	Phe	Asn	Leu	Glu	Glu	Glu	Arg	Gln	
		710					715					720				
gcg	ctg	gtg	gaa	aat	ctc	cgg	gga	gct	ctg	aag	gag	agc	ggg	ttg	agc	2563
Ala	Leu	Val	Glu	Asn	Leu	Arg	Gly	Ala	Leu	Lys	Glu	Ser	Gly	Leu	Ser	
	725					730					735					
atc	cag	gag	tgg	gag	ctg	cgg	gag	cag	gag	ctg	atg	aga	gca	gct	gtg	2611
Ile	Gln	Glu	Trp	Glu	Leu	Arg	Glu	Gln	Glu	Leu	Met	Arg	Ala	Ala	Val	
740					745				750						755	
aca	cgg	gag	cag	cgg	agg	cac	ctc	ctg	gag	acc	ttt	ttc	agg	cac	ctt	2659
Thr	Arg	Glu	Gln	Arg	Arg	His	Leu	Leu	Glu	Thr	Phe	Phe	Arg	His	Leu	
			760					765					770			
ttc	tcc	cag	gtg	ctg	gac	atc	aac	cag	gcc	gac	gca	ggg	acc	ctg	ccc	2707
Phe	Ser	Gln	Val	Leu	Asp	Ile	Asn	Gln	Ala	Asp	Ala	Gly	Thr	Leu	Pro	
		775					780					785				
ctg	gac	tcc	tcc	cag	aag	gtg	cgg	gag	gcc	ctg	acc	tgt	gag	ctg	agc	2755
Leu	Asp	Ser	Ser	Gln	Lys	Val	Arg	Glu	Ala	Leu	Thr	Cys	Glu	Leu	Ser	
		790					795					800				
agg	gcc	gag	ttt	gcc	gag	tcc	ctg	ggc	ctc	aag	ccc	cag	gac	atg	ttt	2803
Arg	Ala	Glu	Phe	Ala	Glu	Ser	Leu	Gly	Leu	Lys	Pro	Gln	Asp	Met	Phe	
	805					810					815					
gtg	gag	tcc	atg	ttc	tct	ctg	gct	gac	aag	gat	ggc	aat	ggc	tac	ctg	2851
Val	Glu	Ser	Met	Phe	Ser	Leu	Ala	Asp	Lys	Asp	Gly	Asn	Gly	Tyr	Leu	
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Ser	Phe	Arg	Glu	Phe	Leu	Asp	Ile	Leu	Val	Val	Phe	Met	Lys	Gly	Ser	
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cct	gag	gaa	aag	tct	cgc	ctt	atg	ttc	cgc	atg	tac	gac	ttt	gat	ggg	2947
Pro	Glu	Glu	Lys	Ser	Arg	Leu	Met	Phe	Arg	Met	Tyr	Asp	Phe	Asp	Gly	
			855					860					865			
aat	ggc	ctc	att	tcc	aag	gat	gag	ttc	atc	agg	atg	ctg	aga	tcc	ttc	2995
Asn	Gly	Leu	Ile	Ser	Lys	Asp	Glu	Phe	Ile	Arg	Met	Leu	Arg	Ser	Phe	
		870					875					880				
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Ile	Glu	Ile	Ser	Asn	Asn	Cys	Leu	Ser	Lys	Ala	Gln	Leu	Ala	Glu	Val	
	885					890					895					
gtg	gag	tcc	atg	ttc	cgg	gag	tcg	gga	ttc	cag	gac	aag	gag	gaa	ctg	3091
Val	Glu	Ser	Met	Phe	Arg	Glu	Ser	Gly	Phe	Gln	Asp	Lys	Glu	Glu	Leu	

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aca tgg gaa gat ttt	cac ttc atg ctg	cgg gac cac aat agc	gag ctc	3139
Thr Trp Glu Asp	Phe His Phe Met Leu	Arg Asp His Asn Ser	Glu Leu	
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cgc ttc acg cag ctc	tgt gtc aaa ggg	gtg gag gtg cct	gaa gtc atc	3187
Arg Phe Thr Gln	Leu Cys Val Lys	Gly Val Glu Val	Pro Glu Val Ile	
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aag gac ctc tgc	cgg cga gcc tcc	tac atc agc cag	gat atg atc tgt	3235
Lys Asp Leu Cys	Arg Arg Ala Ser	Tyr Ile Ser Gln	Asp Met Ile Cys	
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ccc tct ccc aga	gtg agt gcc cgc	tgt tcc cgc agc	gac att gag act	3283
Pro Ser Pro Arg	Val Ser Ala Arg	Cys Ser Arg Ser	Asp Ile Glu Thr	
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Glu Leu Thr Pro	Gln Arg Leu Gln	Cys Pro Met Asp	Thr Asp Pro Pro	
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cag gag att cgg	cgg agg ttt ggc	aag aag gta acg	tca ttc cag	3376
Gln Glu Ile Arg	Arg Arg Phe Gly	Lys Lys Val Thr	Ser Phe Gln	
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ccc ttg ctg ttc	act gag gcg cac	cga gag aag ttc	caa cgc agc	3421
Pro Leu Leu Phe	Thr Glu Ala His	Arg Glu Lys Phe	Gln Arg Ser	
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Cys Leu His Gln	Thr Val Gln Gln	Phe Lys Arg Phe	Ile Glu Asn	
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tac cgg cgc cac	atc ggc tgc gtg	gcc gtg ttc	tac gcc atc gct	3511
Tyr Arg Arg His	Ile Gly Cys Val	Ala Val Phe Tyr	Ala Ile Ala	
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ggg ggg ctt ttc	ctg gag agg gcc	tac tac tac gcc	ttt gcc gca	3556
Gly Gly Leu Phe	Leu Glu Arg Ala	Tyr Tyr Tyr Ala	Phe Ala Ala	
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cat cac acg ggc	atc aca gac acc	acc cgc gtg gga	atc atc ctg	3601
His His Thr Gly	Ile Thr Asp Thr	Thr Arg Val Gly	Ile Ile Leu	
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tcg cgg ggc aca	gca gcc agc atc	tct ttc atg ttc	tcc tac atc	3646
Ser Arg Gly Thr	Ala Ala Ser Ile	Ser Phe Met Phe	Ser Tyr Ile	
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ttg ctc acc atg	tgc cgc aac ctc	atc acc ttc ctg	cga gaa acc	3691
Leu Leu Thr Met	Cys Arg Asn Leu	Ile Thr Phe Leu	Arg Glu Thr	
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Phe	Leu	Asn	Arg	Tyr	Val	Pro	Phe	Asp	Ala	Ala	Val	Asp	Phe	His	
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cgc	ctc	att	gcc	tcc	acc	gcc	atc	gtc	ctc	aca	gtc	tta	cac	agt	3781
Arg	Leu	Ile	Ala	Ser	Thr	Ala	Ile	Val	Leu	Thr	Val	Leu	His	Ser	
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Val	Gly	His	Val	Val	Asn	Val	Tyr	Leu	Phe	Ser	Ile	Ser	Pro	Leu	
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Ser	Val	Leu	Ser	Cys	Leu	Phe	Pro	Gly	Leu	Phe	His	Asp	Asp	Gly	
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Ser	Glu	Leu	Pro	Gln	Lys	Tyr	Tyr	Trp	Trp	Phe	Phe	Gln	Thr	Val	
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Pro	Gly	Leu	Thr	Gly	Val	Val	Leu	Leu	Leu	Ile	Leu	Ala	Ile	Met	
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Tyr	Val	Phe	Ala	Ser	His	His	Phe	Arg	Arg	Arg	Ser	Phe	Arg	Gly	
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ttc	tgg	ctg	acc	cac	cac	ctc	tac	atc	ctg	ctc	tat	gtc	ctg	ctc	4051
Phe	Trp	Leu	Thr	His	His	Leu	Tyr	Ile	Leu	Leu	Tyr	Val	Leu	Leu	
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Ile	Ile	His	Gly	Ser	Phe	Ala	Leu	Ile	Gln	Leu	Pro	Arg	Phe	His	
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Ile	Phe	Phe	Leu	Val	Pro	Ala	Ile	Ile	Tyr	Gly	Gly	Asp	Lys	Leu	
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Val	Ser	Leu	Ser	Arg	Lys	Lys	Val	Glu	Ile	Ser	Val	Val	Lys	Ala	
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Glu	Leu	Leu	Pro	Ser	Gly	Val	Thr	His	Leu	Arg	Phe	Gln	Arg	Pro	
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Gln	Gly	Phe	Glu	Tyr	Lys	Ser	Gly	Gln	Trp	Val	Arg	Ile	Ala	Cys	
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ctg	gct	ctg	ggg	acc	acc	gag	tac	cac	ccc	ttc	aca	ctg	acc	tct	4321
Leu	Ala	Leu	Gly	Thr	Thr	Glu	Tyr	His	Pro	Phe	Thr	Leu	Thr	Ser	
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gcg ccc cat gag gac	acg ctt agc ctg cac	atc cgg gca gca ggg	4366
Ala Pro His Glu Asp	Thr Leu Ser Leu His	Ile Arg Ala Ala Gly	
1330	1335	1340	
ccc tgg acc act cgc	ctc agg gag atc tac	tca gcc ccg acg ggt	4411
Pro Trp Thr Thr Arg	Leu Arg Glu Ile Tyr	Ser Ala Pro Thr Gly	
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gac aga tgt gcc aga	tac cca aag ctg tac	ctt gat gga cca ttt	4456
Asp Arg Cys Ala Arg	Tyr Pro Lys Leu Tyr	Leu Asp Gly Pro Phe	
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Gly Glu Gly His Gln	Glu Trp His Lys Phe	Glu Val Ser Val Leu	
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Val Gly Gly Gly Ile	Gly Val Thr Pro Phe	Ala Ser Ile Leu Lys	
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Asp Leu Val Phe Lys	Ser Ser Val Ser Cys	Gln Val Phe Cys Lys	
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Lys Ile Tyr Phe Ile	Trp Val Thr Arg Thr	Gln Arg Gln Phe Glu	
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Trp Leu Ala Asp Ile	Ile Arg Glu Val Glu	Glu Asn Asp His Gln	
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gac ctg gtg tct gtg	cac atc tac atc acc	cag ctg gct gag aag	4726
Asp Leu Val Ser Val	His Ile Tyr Ile Thr	Gln Leu Ala Glu Lys	
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Phe Asp Leu Arg Thr	Thr Met Leu Tyr Ile	Cys Glu Arg His Phe	
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Gln Lys Val Leu Asn	Arg Ser Leu Phe Thr	Gly Leu Arg Ser Ile	
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Thr His Phe Gly Arg	Pro Pro Phe Glu Pro	Phe Phe Asn Ser Leu	
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Gln Glu Val His Pro	Gln Val Arg Lys Ile	Gly Val Phe Ser Cys	
1510	1515	1520	
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Gly Pro Pro Gly Met	Thr Lys Asn Val Glu	Lys Ala Cys Gln Leu	
1525	1530	1535	

atc aac agg cag gac cgg act cac ttc tcc cac cat tat gag aac 4996  
 Ile Asn Arg Gln Asp Arg Thr His Phe Ser His His Tyr Glu Asn  
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 Phe

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<211> 1551

<212> PRT

<213> Homo sapiens

<400> 12

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Thr Pro Leu Gly Ala Gln Asn Pro Ile Ser Trp Glu Val Gln Arg Phe  
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Asp Gly Trp Tyr Asn Asn Leu Met Glu His Arg Trp Gly Ser Lys Gly  
 35 40 45

Ser Arg Leu Gln Arg Leu Val Pro Ala Ser Tyr Ala Asp Gly Val Tyr  
 50 55 60

Gln Pro Leu Gly Glu Pro His Leu Pro Asn Pro Arg Asp Leu Ser Asn  
 65 70 75 80

Thr Ile Ser Arg Gly Pro Ala Gly Leu Ala Ser Leu Arg Asn Arg Thr  
 85 90 95

Val Leu Gly Val Phe Phe Gly Tyr His Val Leu Ser Asp Leu Val Ser  
 100 105 110

Val Glu Thr Pro Gly Cys Pro Ala Glu Phe Leu Asn Ile Arg Ile Pro  
 115 120 125

Pro Gly Asp Pro Met Phe Asp Pro Asp Gln Arg Gly Asp Val Val Leu  
 130 135 140

Pro Phe Gln Arg Ser Arg Trp Asp Pro Glu Thr Gly Arg Ser Pro Ser  
 145 150 155 160

Asn Pro Arg Asp Pro Ala Asn Gln Val Thr Gly Trp Leu Asp Gly Ser  
 165 170 175

Ala Ile Tyr Gly Ser Ser His Ser Trp Ser Asp Ala Leu Arg Ser Phe  
 180 185 190

Ser Arg Gly Gln Leu Ala Ser Gly Pro Asp Pro Ala Phe Pro Arg Asp  
 195 200 205

Ser Gln Asn Pro Leu Leu Met Trp Ala Ala Pro Asp Pro Ala Thr Gly  
 210 215 220

Gln Asn Gly Pro Arg Gly Leu Tyr Ala Phe Gly Ala Glu Arg Gly Asn  
 225 230 235 240

Arg Glu Pro Phe Leu Gln Ala Leu Gly Leu Leu Trp Phe Arg Tyr His  
 245 250 255

Asn Leu Trp Ala Gln Arg Leu Ala Arg Gln His Pro Asp Trp Glu Asp  
 260 265 270

Glu Glu Leu Phe Gln His Ala Arg Lys Arg Val Ile Ala Thr Tyr Gln  
 275 280 285

Asn Ile Ala Val Tyr Glu Trp Leu Pro Ser Phe Leu Gln Lys Thr Leu  
 290 295 300

Pro Glu Tyr Thr Gly Tyr Arg Pro Phe Leu Asp Pro Ser Ile Ser Ser  
 305 310 315 320

Glu Phe Val Ala Ala Ser Glu Gln Phe Leu Ser Thr Met Val Pro Pro  
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Gly Val Tyr Met Arg Asn Ala Ser Cys His Phe Gln Gly Val Ile Asn  
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Arg Asn Ser Ser Val Ser Arg Ala Leu Arg Val Cys Asn Ser Tyr Trp  
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Ser Arg Glu His Pro Ser Leu Gln Ser Ala Glu Asp Val Asp Ala Leu  
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Leu Leu Gly Met Ala Ser Gln Ile Ala Glu Arg Glu Asp His Val Leu  
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Val Glu Asp Val Arg Asp Phe Trp Pro Gly Pro Leu Lys Phe Ser Arg  
 405 410 415

Thr Asp His Leu Ala Ser Cys Leu Gln Arg Gly Arg Asp Leu Gly Leu  
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Pro Ser Tyr Thr Lys Ala Arg Ala Ala Leu Gly Leu Ser Pro Ile Thr  
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Arg Trp Gln Asp Ile Asn Pro Ala Leu Ser Arg Ser Asn Asp Thr Val  
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Leu Glu Ala Thr Ala Ala Leu Tyr Asn Gln Asp Leu Ser Trp Leu Glu  
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Leu Leu Pro Gly Gly Leu Leu Glu Ser His Arg Asp Pro Gly Pro Leu  
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Phe Ser Thr Ile Val Leu Glu Gln Phe Val Arg Leu Arg Asp Gly Asp  
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Arg Tyr Trp Phe Glu Asn Thr Arg Asn Gly Leu Phe Ser Lys Lys Glu  
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Ile Glu Glu Ile Arg Asn Thr Thr Leu Gln Asp Val Leu Val Ala Val  
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Ile Asn Ile Asp Pro Ser Ala Leu Gln Pro Asn Val Phe Val Trp His  
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Lys Gly Asp Pro Cys Pro Gln Pro Arg Gln Leu Ser Thr Glu Gly Leu  
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Pro Ala Cys Ala Pro Ser Val Val Arg Asp Tyr Phe Glu Gly Ser Gly  
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Phe Gly Phe Gly Val Thr Ile Gly Thr Leu Cys Cys Phe Pro Leu Val  
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Ser Leu Leu Ser Ala Trp Ile Val Ala Arg Leu Arg Met Arg Asn Phe  
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Lys Arg Leu Gln Gly Gln Asp Arg Gln Ser Ile Val Ser Glu Lys Leu  
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Val Gly Gly Met Glu Ala Leu Glu Trp Gln Gly His Lys Glu Pro Cys  
 645 650 655

Arg Pro Val Leu Val Tyr Leu Gln Pro Gly Gln Ile Arg Val Val Asp  
 660 665 670

Gly Arg Leu Thr Val Leu Arg Thr Ile Gln Leu Gln Pro Pro Gln Lys  
 675 680 685

Val Asn Phe Val Leu Ser Ser Asn Arg Gly Arg Arg Thr Leu Leu Leu  
 690 695 700

Lys Ile Pro Lys Glu Tyr Asp Leu Val Leu Leu Phe Asn Leu Glu Glu  
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Glu Arg Gln Ala Leu Val Glu Asn Leu Arg Gly Ala Leu Lys Glu Ser

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Ala	Ala	Val	Thr	Arg	Glu	Gln	Arg	Arg	His	Leu	Leu	Glu	Thr	Phe	Phe
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Arg	His	Leu	Phe	Ser	Gln	Val	Leu	Asp	Ile	Asn	Gln	Ala	Asp	Ala	Gly
	770					775					780				
Thr	Leu	Pro	Leu	Asp	Ser	Ser	Gln	Lys	Val	Arg	Glu	Ala	Leu	Thr	Cys
785						790					795				800
Glu	Leu	Ser	Arg	Ala	Glu	Phe	Ala	Glu	Ser	Leu	Gly	Leu	Lys	Pro	Gln
				805					810					815	
Asp	Met	Phe	Val	Glu	Ser	Met	Phe	Ser	Leu	Ala	Asp	Lys	Asp	Gly	Asn
			820					825					830		
Gly	Tyr	Leu	Ser	Phe	Arg	Glu	Phe	Leu	Asp	Ile	Leu	Val	Val	Phe	Met
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Phe	Asp	Gly	Asn	Gly	Leu	Ile	Ser	Lys	Asp	Glu	Phe	Ile	Arg	Met	Leu
865				870						875					880
Arg	Ser	Phe	Ile	Glu	Ile	Ser	Asn	Asn	Cys	Leu	Ser	Lys	Ala	Gln	Leu
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Ala	Glu	Val	Val	Glu	Ser	Met	Phe	Arg	Glu	Ser	Gly	Phe	Gln	Asp	Lys
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Glu	Glu	Leu	Thr	Trp	Glu	Asp	Phe	His	Phe	Met	Leu	Arg	Asp	His	Asn
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Ser	Glu	Leu	Arg	Phe	Thr	Gln	Leu	Cys	Val	Lys	Gly	Val	Glu	Val	Pro
	930					935					940				

Glu Val Ile Lys Asp Leu Cys Arg Arg Ala Ser Tyr Ile Ser Gln Asp  
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Ile Glu Thr Glu Leu Thr Pro Gln Arg Leu Gln Cys Pro Met Asp Thr  
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Asp Pro Pro Gln Glu Ile Arg Arg Arg Phe Gly Lys Lys Val Thr Ser  
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Phe Gln Pro Leu Leu Phe Thr Glu Ala His Arg Glu Lys Phe Gln  
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Tyr Ile Leu Leu Thr Met Cys Arg Asn Leu Ile Thr Phe Leu Arg  
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Phe His Arg Leu Ile Ala Ser Thr Ala Ile Val Leu Thr Val Leu  
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1175						1180					1185			
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1190						1195					1200			
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1205						1210					1215			
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1220						1225					1230			
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1250						1255					1260			
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Cys Lys Lys Ile Tyr Phe Ile Trp Val Thr Arg Thr Gln Arg Gln  
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Phe Glu Trp Leu Ala Asp Ile Ile Arg Glu Val Glu Glu Asn Asp  
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His Gln Asp Leu Val Ser Val His Ile Tyr Ile Thr Gln Leu Ala  
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Gly Tyr Arg Pro Phe Leu Asp Pro Ser Ile Ser Pro Glu Phe Val Val	
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Ser Ser Gln Ala Leu Arg Val Cys Asn Asn Tyr Trp Ile Arg Glu Asn	

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Pro Arg Arg Leu Ser Asn Ala Ala Thr Arg Gly Ile Ala Gly Leu Pro

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Pro	Ala	Phe	Pro	Arg	Asp	Ser	Gln	Asn	Pro	Leu	Leu	Met	Trp	Ala	Ala
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Pro	Asp	Pro	Ala	Thr	Gly	Gln	Asn	Gly	Pro	Arg	Gly	Leu	Tyr	Ala	Phe
225					230					235					240
Gly	Ala	Glu	Arg	Gly	Asn	Arg	Glu	Pro	Phe	Leu	Gln	Ala	Leu	Gly	Leu
				245					250					255	
Leu	Trp	Phe	Arg	Tyr	His	Asn	Leu	Trp	Ala	Gln	Arg	Leu	Ala	Arg	Gln
			260					265					270		
His	Pro	Asp	Trp	Glu	Asp	Glu	Glu	Leu	Phe	Gln	His	Ala	Arg	Lys	Arg
		275					280					285			
Val	Ile	Ala	Thr	Tyr	Gln	Asn	Ile	Ala	Val	Tyr	Glu	Trp	Leu	Pro	Ser
	290					295					300				

Phe Leu Gln Lys Thr Leu Pro Glu Tyr Thr Gly Tyr Arg Pro Phe Leu  
 305 310 315 320

Asp Pro Ser Ile Ser Pro Glu Phe Val Val Ala Ser Glu Gln Phe Phe  
 325 330 335

Ser Thr Met Val Pro Pro Gly Val Tyr Met Arg Asn Ala Ser Cys His  
 340 345 350

Phe Arg Lys Val Leu Asn Lys Gly Phe Gln Ser Ser Gln Ala Leu Arg  
 355 360 365

Val Cys Asn Asn Tyr Trp Ile Arg Glu Asn Pro Asn Leu Asn Ser Thr  
 370 375 380

Gln Glu Val Asn Glu Leu Leu Leu Gly Met Ala Ser Gln Ile Ser Glu  
 385 390 395 400

Leu Glu Asp Asn Ile Val Val Glu Asp Leu Arg Asp Tyr Trp Pro Gly  
 405 410 415

Pro Gly Lys Phe Ser Arg Thr Asp Tyr Val Ala Ser Ser Ile Gln Arg  
 420 425 430

Gly Arg Asp Met Gly Leu Pro Ser Tyr Ser Gln Ala Leu Leu Ala Phe  
 435 440 445

Gly Leu Asp Ile Pro Arg Asn Trp Ser Asp Leu Asn Pro Asn Val Asp  
 450 455 460

Pro Gln Val Leu Glu Ala Thr Ala Ala Leu Tyr Asn Gln Asp Leu Ser  
 465 470 475 480

Gln Leu Glu Leu Leu Leu Gly Gly Leu Leu Glu Ser His Gly Asp Pro  
 485 490 495

Gly Pro Leu Phe Ser Ala Ile Val Leu Asp Gln Phe Val Arg Leu Arg  
 500 505 510

Asp Gly Asp Arg Tyr Trp Phe Glu Asn Thr Arg Asn Gly Leu Phe Ser  
 515 520 525

Lys Lys Glu Ile Glu Asp Ile Arg Asn Thr Thr Leu Arg Asp Val Leu  
 530 535 540

Val Ala Val Ile Asn Ile Asp Pro Ser Ala Leu Gln Pro Asn Val Phe  
 545 550 555 560

Val Trp His Lys Gly Ala Pro Cys Pro Gln Pro Lys Gln Leu Thr Thr  
 565 570 575

Asp Gly Leu Pro Gln Cys Ala Pro Leu Thr Val Leu Asp Phe Phe Glu  
 580 585 590

Gly Ser Ser Pro Gly Phe Ala Ile Thr Ile Ile Ala Leu Cys Cys Leu  
 595 600 605

Pro Leu Val Ser Leu Leu Leu Ser Gly Val Val Ala Tyr Phe Arg Gly  
 610 615 620

Arg Glu His Lys Lys Leu Gln Lys Lys Leu Lys Glu Ser Val Lys Lys  
 625 630 635 640

Glu Ala Ala Lys Asp Gly Val Pro Ala Met Glu Trp Pro Gly Pro Lys  
 645 650 655

Glu Arg Ser Ser Pro Ile Ile Ile Gln Leu Leu Ser Asp Arg Cys Leu  
 660 665 670

Gln Val Leu Asn Arg His Leu Thr Val Leu Arg Val Val Gln Leu Gln  
 675 680 685

Pro Leu Gln Gln Val Asn Leu Ile Leu Ser Asn Asn Arg Gly Cys Arg  
 690 695 700

Thr Leu Leu Leu Lys Ile Pro Lys Glu Tyr Asp Leu Val Leu Leu Phe  
 705 710 715 720

Ser Ser Glu Glu Glu Arg Gly Ala Phe Val Gln Gln Leu Trp Asp Phe  
 725 730 735

Cys Val Arg Trp Ala Leu Gly Leu His Val Ala Glu Met Ser Glu Lys  
 740 745 750

Glu Leu Phe Arg Lys Ala Val Thr Lys Gln Gln Arg Glu Arg Ile Leu  
 755 760 765

Glu Ile Phe Phe Arg His Leu Phe Ala Gln Val Leu Asp Ile Asn Gln  
 770 775 780

Ala Asp Ala Gly Thr Leu Pro Leu Asp Ser Ser Gln Lys Val Arg Glu  
 785 790 795 800

Ala Leu Thr Cys Glu Leu Ser Arg Ala Glu Phe Ala Glu Ser Leu Gly  
 805 810 815

Leu Lys Pro Gln Asp Met Phe Val Glu Ser Met Phe Ser Leu Ala Asp  
 820 825 830

Lys Asp Gly Asn Gly Tyr Leu Ser Phe Arg Glu Phe Leu Asp Ile Leu  
 835 840 845

Val Val Phe Met Lys Gly Ser Pro Glu Asp Lys Ser Arg Leu Met Phe  
 850 855 860

Thr Met Tyr Asp Leu Asp Glu Asn Gly Phe Leu Ser Lys Asp Glu Phe  
 865 870 875 880

Phe Thr Met Met Arg Ser Phe Ile Glu Ile Ser Asn Asn Cys Leu Ser  
 885 890 895

Lys Ala Gln Leu Ala Glu Val Val Glu Ser Met Phe Arg Glu Ser Gly  
 900 905 910

Phe Gln Asp Lys Glu Glu Leu Thr Trp Glu Asp Phe His Phe Met Leu  
 915 920 925

Arg Asp His Asp Ser Glu Leu Arg Phe Thr Gln Leu Cys Val Lys Gly  
 930 935 940

Gly Gly Gly Gly Gly Asn Gly Ile Arg Asp Ile Phe Lys Gln Asn Ile  
 945 950 955 960

Ser Cys Arg Val Ser Phe Ile Thr Arg Thr Pro Gly Glu Arg Ser His

	965		970		975
Pro Gln Gly Leu Gly Pro Pro Ala Pro Glu Ala Pro Glu Leu Gly Gly	980		985		990
Pro Gly Leu Lys Lys Arg Phe Gly Lys Lys Ala Ala Val Pro Thr Pro	995		1000		1005
Arg Leu Tyr Thr Glu Ala Leu Gln Glu Lys Met Gln Arg Gly Phe	1010		1015		1020
Leu Ala Gln Lys Leu Gln Gln Tyr Lys Arg Phe Val Glu Asn Tyr	1025		1030		1035
Arg Arg His Ile Val Cys Val Ala Ile Phe Ser Ala Ile Cys Val	1040		1045		1050
Gly Val Phe Ala Asp Arg Ala Tyr Tyr Tyr Gly Phe Ala Ser Pro	1055		1060		1065
Pro Ser Asp Ile Ala Gln Thr Thr Leu Val Gly Ile Ile Leu Ser	1070		1075		1080
Arg Gly Thr Ala Ala Ser Val Ser Phe Met Phe Ser Tyr Ile Leu	1085		1090		1095
Leu Thr Met Cys Arg Asn Leu Ile Thr Phe Leu Arg Glu Thr Phe	1100		1105		1110
Leu Asn Arg Tyr Val Pro Phe Asp Ala Ala Val Asp Phe His Arg	1115		1120		1125
Trp Ile Ala Met Ala Ala Val Val Leu Ala Ile Leu His Ser Ala	1130		1135		1140
Gly His Ala Val Asn Val Tyr Ile Phe Ser Val Ser Pro Leu Ser	1145		1150		1155
Leu Leu Ala Cys Ile Phe Pro Asn Val Phe Val Asn Asp Gly Ser	1160		1165		1170

Lys Leu Pro Gln Lys Phe Tyr Trp Trp Phe Phe Gln Thr Val Pro  
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Gly Met Thr Gly Val Leu Leu Leu Leu Val Leu Ala Ile Met Tyr  
 1190 1195 1200

Val Phe Ala Ser His His Phe Arg Arg Arg Ser Phe Arg Gly Phe  
 1205 1210 1215

Trp Leu Thr His His Leu Tyr Ile Leu Leu Tyr Ala Leu Leu Ile  
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Ile His Gly Ser Tyr Ala Leu Ile Gln Leu Pro Thr Phe His Ile  
 1235 1240 1245

Tyr Phe Leu Val Pro Ala Ile Ile Tyr Gly Gly Asp Lys Leu Val  
 1250 1255 1260

Ser Leu Ser Arg Lys Lys Val Glu Ile Ser Val Val Lys Ala Glu  
 1265 1270 1275

Leu Leu Pro Ser Gly Val Thr Tyr Leu Gln Phe Gln Arg Pro Gln  
 1280 1285 1290

Gly Phe Glu Tyr Lys Ser Gly Gln Trp Val Arg Ile Ala Cys Leu  
 1295 1300 1305

Ala Leu Gly Thr Thr Glu Tyr His Pro Phe Thr Leu Thr Ser Ala  
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Pro His Glu Asp Thr Leu Ser Leu His Ile Arg Ala Val Gly Pro  
 1325 1330 1335

Trp Thr Thr Arg Leu Arg Glu Ile Tyr Ser Ser Pro Lys Gly Asn  
 1340 1345 1350

Gly Cys Ala Gly Tyr Pro Lys Leu Tyr Leu Asp Gly Pro Phe Gly  
 1355 1360 1365

Glu Gly His Gln Glu Trp His Lys Phe Glu Val Ser Val Leu Val  
 1370 1375 1380

Gly Gly Gly Ile Gly Val Thr Pro Phe Ala Ser Ile Leu Lys Asp  
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Leu Val Phe Lys Ser Ser Leu Gly Ser Gln Met Leu Cys Lys Lys  
 1400 1405 1410

Ile Tyr Phe Ile Trp Val Thr Arg Thr Gln Arg Gln Phe Glu Trp  
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Leu Ala Asp Ile Ile Gln Glu Val Glu Glu Asn Asp His Gln Asp  
 1430 1435 1440

Leu Val Ser Val His Ile Tyr Val Thr Gln Leu Ala Glu Lys Phe  
 1445 1450 1455

Asp Leu Arg Thr Thr Met Leu Tyr Ile Cys Glu Arg His Phe Gln  
 1460 1465 1470

Lys Val Leu Asn Arg Ser Leu Phe Thr Gly Leu Arg Ser Ile Thr  
 1475 1480 1485

His Phe Gly Arg Pro Pro Phe Glu Pro Phe Phe Asn Ser Leu Gln  
 1490 1495 1500

Glu Val His Pro Gln Val Arg Lys Ile Gly Val Phe Ser Cys Gly  
 1505 1510 1515

Pro Pro Gly Met Thr Lys Asn Val Glu Lys Ala Cys Gln Leu Val  
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 gttaattgcc cctcaatctc tctcctggaa tggcatcctt ttactttgac ctctgctcca 180  
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 agggctttcg aacaacaata ttcaccaatt cccaggattg aagtggatgg tccctttggc 300  
 acagccagtg aggatgtttt ccagtatgaa gtggctgtgc tggttggagc aggaattggg 360  
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 aacctcaaaa caaaaaagat ctatttctac tggatctgca gggagacagg tgccttttcc 480  
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 ttaaactttg acaaggccac tgacatcgtg acaggtctga aacagaaaac ctcccttggg 660  
 agaccaatgt gggacaatga gttttctaca atagctacct cccaccccaa gtctgtagtg 720  
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